
U.S. Department of the Interior • U.S. Geological Survey

MINERAL INDUSTRY SURVEYS

Gordon P. Eaton, Director

Reston, VA 20192

For information, contact:

Jozef Plachy, Zinc Specialist

Telephone: (703) 648-4982, Fax: (703) 648-7757

E-mail: jplachy@usgs.gov

Stephen M. Jasinski (Data), (703) 648-7955

MINES-DATA: (703) 648-7799

MINES FaxBack: (703) 648-4999

Internet: <http://minerals.er.usgs.gov/minerals>

ZINC IN APRIL 1997

Domestic mine production in April, expressed in zinc content of concentrate, increased by about 4.5% over the previous month's production, and nearly 6% over April 1996. The estimated smelter production was nearly 6% higher than in March and 11% higher than a year ago. Apparent consumption in April increased by more than 15% over consumption in March and about 9% over that of April 1996.

The Platt's Metals Week composite price for North American Special High Grade zinc declined by slightly more than 1%. In spite of the small decline, the price was more than 22% higher than a year ago. The April price level was a reflection of declining London Metal Exchange stocks, which dropped to 432,400 tons from 622,500 tons a year ago. If the price increase resumes, more zinc from China may enter the market. Already in the first quarter of 1997, China has exported 128,527 tons of zinc metal, nearly a 180% increase over the comparable 1996 period (Ryan's Notes, 1997).

Increased zinc consumption in 1997 is fueled by the growing use of galvanized steel by the construction and automotive industries in the United States. To meet this increased demand, U.S. Steel is adding 660,000 tons to its annual coating capacity, and BHP Coated Steel is to begin production on its new 150,000-ton galvanizing line in Kalama, Washington, by the end of July (Balcerek, 1997).

Exploration drilling at the Wolverine deposit, southwestern Yukon Territory, was scheduled to resume in early May. The project is a joint venture of Westmin Resources (60%) and Atna Resources (40%). The polymetallic deposit had been partially delineated by 64 drill holes, totaling 18,810 meters; drilling resulted in the discovery of the Lynx zone, adjoining the western part of the main Wolverine zone. Estimated resources at Wolverine currently amount to 5.3 million tons grading 13% zinc. Additional drilling is to resume in early May (The Mining Record, 1997).

According to a company official at Western Minerals Ltd., Australian annual zinc mine production will increase by an

amount in the range of 500,000 to 790,000 tons between now and 2001. This increase will come from expansions at existing mines as well as from the development of new mines, including the Century, George Fisher, Blendevale, and Cannington mines. The size of the increase in production will be tempered by declining production at some of the existing mines, most notably at Mount Isa, presently the largest zinc mine in Australia. However, even the lowest increase forecasted would boost Australian production of zinc-in-concentrate by about 50%. Since the current smelter annual output of around 330,000 tons will increase by only 170,000 tons, most of the additional zinc concentrate will be exported. In addition to traditional markets in Korea and Japan, large amounts of concentrate will be shipped to Europe (Metal Bulletin, 1997).

Privatization of Peruvian state-owned Empresa Minera del Centro del Peru S.A. (Centromin) continued on with the sale of the La Oroya smelter/refinery complex to Grupo Industrias Peñoles of Mexico. Located about 190 kilometers east of Lima, the La Oroya complex produces a range of 22 metals, the most important of which are zinc (69,567 tons produced in 1996), copper (65,759 tons), lead (94,923 tons), silver (653 tons), gold (1,629 kilograms), and bismuth (939 tons). The sale price of \$185 million for the purchase of a 51% interest in the complex will be used for extensive remedial work, particularly on environmental aspects. Peñoles has 30 days to decide if it wants to buy any additional shares or eliminate the government's holding entirely for an extra \$192.6 million. However, employees hold preferential rights to acquire a 10% interest in the complex (Mining Journal, 1997b).

The Iranian Ministry of Mines and Metals reportedly plans to invest \$33 million in zinc smelters and refineries to take advantage of its locally produced lead-zinc concentrate. As the first step, a new 7,000-ton-capacity refinery was recently opened in Angura. It was built by Iranian companies near the largest lead-zinc mine, 120 kilometers southwest of the provincial capital of Zanzan. By 1998, Iran plans to double its current

capacity to 14,000 tons of zinc annually. Further projects were expected to increase annual zinc metal output to 60,000 tons by the year 2000 (Mining Journal, 1997a).

References Cited

Balcerek, T., 1997, USS adds to galvanizing capacity: Metal Bulletin, no. 8171, April 21, p. 22.

Metal Bulletin, 1997, Australian miners well placed for future growth in production: Metal Bulletin, no. 8171, April 21, p. 7.

Mining Journal, 1997a, Iranian zinc refinery start-up: Mining Journal, v. 328, no. 8426, April 25, p. 323.

———1997b, Peñoles wins La Oroya: Mining Journal, v. 328, no. 8426, April 25, p. 319.

The Mining Record, 1997, Westmin to resume drilling on Wolverine project: The Mining Record, v. 108, no. 17, April 23, p. 20.

Ryan's Notes, 1997, Lead and zinc notes: April 28, p. 4.

TABLE 1
SALIENT ZINC STATISTICS 1/

(Metric tons)

| | 1996 | | | 1997 | | | |
|---|------------|------------|--------------|------------|------------|------------|------------|
| | April | Jan.-Apr. | Jan.-Dec. p/ | February | March | April | Jan.-Apr. |
| Production: | | | | | | | |
| Mine, zinc content of concentrate | 47,500 | 206,000 | 603,000 | 47,900 | 48,000 r/ | 50,200 | 195,000 |
| Mine, recoverable zinc | 45,500 | 197,000 r/ | 575,000 | 45,700 | 45,800 r/ | 47,900 | 186,000 |
| Smelter, refined zinc | 29,800 | 121,000 | 366,000 | 29,300 r/ | 31,300 r/ | 33,100 e/ | 126,000 |
| Oxide (gross weight) | 11,400 | 44,600 | 129,000 | 12,200 r/ | 13,400 r/ | 14,300 | 52,900 |
| Consumption: | | | | | | | |
| Refined zinc, reported | 55,700 r/ | 227,000 r/ | 661,000 | 43,100 r/ | 48,700 r/ | 49,600 | 186,000 |
| Ores e/ (zinc content) | 150 r/ | 600 r/ | 1,800 | 150 | 150 | 150 | 600 |
| Zinc-base scrap e/ (zinc content) | 8,300 r/ | 33,200 r/ | 100,000 | 8,300 | 8,300 | 8,300 | 33,200 |
| Copper-base scrap e/ (zinc content) | 14,000 r/ | 56,000 r/ | 170,000 | 14,000 | 14,000 | 14,000 | 56,000 |
| Aluminum- and magnesium-base scrap e/ (zinc content) | 67 r/ | 268 r/ | 800 | 67 | 67 | 67 | 268 |
| Total e/ | 78,200 r/ | 317,000 r/ | 933,000 | 65,600 r/ | 71,200 r/ | 72,200 | 276,000 |
| Apparent consumption, metal 2/ | 103,000 r/ | 378,000 r/ | 1,210,000 | 94,000 r/ | 96,900 r/ | 112,000 | 431,000 |
| Stocks of refined (slab) zinc, end of period: | | | | | | | |
| Producer 3/ | 8,280 r/ | XX | XX | 10,800 r/ | 11,600 r/ | 11,600 e/ | XX |
| Consumer 4/ | 64,700 r/ | XX | XX | 57,000 r/ | 57,000 r/ | 54,000 | XX |
| Merchant | 4,600 | XX | XX | 5,040 | 5,590 | 5,260 | XX |
| Total | 77,600 r/ | XX | XX | 72,800 r/ | 74,300 r/ | 71,000 | XX |
| Shipments of zinc metal from Government stockpile | 1,220 | 2,680 | 16,500 | 4,400 | 5,080 | 13,400 | 25,900 |
| Imports for consumption: | | | | | | | |
| Refined (slab) zinc | 72,200 | 257,000 | 827,000 | 62,300 | 62,300 | NA | 217,000 5/ |
| Oxide (gross weight) | 4,540 | 19,700 | 56,300 | 5,470 | 6,230 | NA | 16,100 5/ |
| Ore and concentrate (zinc content) | 12 | 964 | 15,100 | -- | 21 | NA | 2,750 5/ |
| Exports: | | | | | | | |
| Refined (slab) zinc | 206 | 258 | 1,970 | 249 | 242 | NA | 770 5/ |
| Oxide (gross weight) | 507 | 2,350 | 5,770 | 537 | 505 | NA | 1,410 5/ |
| Ore and concentrate (zinc content) | 8,580 | 19,400 | 425,000 | 9,280 | 5,750 | NA | 23,700 5/ |
| Waste and scrap (gross weight) | 5,770 | 18,700 | 45,500 | 3,670 | 5,710 | NA | 12,200 5/ |
| Price: | | | | | | | |
| London Metal Exchange, average, per metric ton | \$1,045.73 | \$1,119.51 | \$1,025.03 | \$1,179.38 | \$1,254.80 | \$1,240.40 | \$1,190.27 |
| Platt's Metals Week North American Special High Grade, average, ¢ per pound | 50.61 | 50.78 | 51.11 | 59.26 | 62.69 | 61.97 | 59.77 |

e/ Estimated. p/ Preliminary. r/ Revised. NA Not available. XX Not applicable.

1/ Data are rounded to three significant digits, except prices; may not add to totals shown.

2/ Smelter production plus imports minus exports plus shipments from Government stockpile plus stock change.

3/ Data from U.S. Geological Survey and American Bureau of Metal Statistics.

4/ Includes an estimate for companies that report annually.

5/ Includes data through March only.

TABLE 2
REFINED ZINC PRODUCED IN THE UNITED STATES 1/

(Metric tons)

| Month | Beginning stocks 2/ | Production | Shipments | Ending stocks 2/ |
|-----------|------------------------|------------|-----------|---------------------|
| 1996: p/ | | | | |
| Jan.-Apr. | XX | 121,000 | 120,000 | XX |
| April | 7,860 | 29,800 | 29,400 | 8,280 |
| May | 8,280 | 30,500 | 30,800 | 8,040 |
| June | 8,040 | 30,400 | 30,300 | 8,130 |
| July | 8,130 | 30,800 | 30,100 | 8,830 |
| August | 8,830 | 27,400 | 26,800 | 9,380 |
| September | 9,380 | 30,800 | 30,600 | 9,600 |
| October | 9,600 | 32,300 | 31,700 | 10,100 |
| November | 10,100 | 32,000 | 30,200 | 11,900 |
| December | 11,900 | 31,200 | 32,100 | 11,100 |
| Total | XX | 366,000 | 392,000 | XX |
| 1997: | | | | |
| January | 11,100 | 32,700 | 32,500 | 11,300 |
| February | 11,300 | 29,300 r/ | 29,900 r/ | 10,800 r/ |
| March r/ | 10,800 | 31,300 | 30,500 | 11,600 |
| April e/ | 11,600 | 33,100 | 33,100 | 11,600 |
| Jan.-Apr. | XX | 126,000 | 126,000 | XX |

e/ Estimated. p/ Preliminary. r/ Revised. XX Not applicable.

1/ Data are rounded to three significant digits; may not add to totals shown.

2/ Includes stocks held at locations other than smelters.

Sources: U.S. Geological Survey and American Bureau of Metal Statistics.

TABLE 3
ZINC OXIDE PRODUCED 1/ IN THE UNITED STATES 2/

(Metric tons, gross weight)

| Month | Beginning stocks | Production | Shipments | Ending stocks |
|-------------|---------------------|------------|-----------|------------------|
| 1996: p/ | | | | |
| Jan.-Apr. | XX | 44,600 | 47,300 | XX |
| April | 3,750 | 11,400 | 11,600 | 3,530 |
| May | 3,530 | 11,200 | 11,400 | 3,390 |
| June | 3,390 | 10,300 | 9,920 | 3,800 |
| July | 3,800 | 9,100 | 9,560 | 3,340 |
| August | 3,340 | 9,870 | 10,200 | 3,060 |
| September | 3,060 | 10,100 | 9,830 | 3,210 |
| October | 3,320 | 11,100 | 11,100 | 3,260 |
| November | 3,260 | 11,100 | 11,100 | 3,240 |
| December | 3,240 | 11,400 | 11,100 | 3,480 r/ |
| Total | XX | 129,000 | 132,000 | XX |
| 1997: | | | | |
| January r/ | 3,480 | 13,000 | 13,300 | 3,190 |
| February r/ | 3,190 | 12,200 | 12,000 | 3,380 |
| March r/ | 3,380 | 13,400 | 12,700 | 4,120 |
| April | 4,120 | 14,300 | 14,100 | 4,290 |
| Jan.-Apr. | XX | 52,900 | 52,100 | XX |

p/ Preliminary. r/ Revised. XX Not applicable.

1/ Excludes impure zinc oxide produced from other processes.

2/ Data are rounded to three significant digits; may not add to totals shown.

TABLE 4
ESTIMATED DISTRIBUTION 1/ OF ZINC OXIDE SHIPMENTS BY INDUSTRY 2/ 3/

(Metric tons, gross weight)

| Industry | 1996 | | | 1997 | | | |
|--------------|--------|-----------|--------------|-------------|----------|--------|-----------|
| | April | Jan.-Apr. | Jan.-Dec. p/ | February r/ | March r/ | April | Jan.-Apr. |
| Agriculture | W | W | W | W | W | W | W |
| Ceramics | 550 | 1,970 | 5,710 | 445 | 352 | 475 | 1,750 |
| Chemicals | 2,640 | 10,500 | 28,900 | 2,390 | 2,810 | 3,410 | 11,300 |
| Paints | 424 | 1,020 | 4,340 | 518 | 518 | 596 | 2,170 |
| Photocopying | W | W | W | W | W | W | W |
| Rubber | 7,410 | 31,600 | 87,500 | 8,200 | 8,530 | 9,050 | 34,800 |
| Other | 545 | 2,250 | 5,760 | 488 | 469 | 565 | 2,050 |
| Total | 11,600 | 47,300 r/ | 132,000 | 12,000 | 12,700 | 14,100 | 52,100 |

p/ Preliminary. r/ Revised. W Withheld to avoid disclosing company proprietary data; included with "Other."

1/ Distribution of U.S. producers only. Imports excluded because distribution by industry cannot be distinguished.

2/ May include in-house consumption.

3/ Data are rounded to three significant digits; may not add to totals shown.

TABLE 5
APPARENT CONSUMPTION OF REFINED ZINC ACCORDING TO INDUSTRY USE AND PRODUCT 1/

(Metric tons)

| Industry and product | 1996 | | | 1997 | | | |
|----------------------|----------|--------------|--------------|-------------|----------|---------|-----------|
| | April r/ | Jan.-Apr. r/ | Jan.-Dec. p/ | February r/ | March r/ | April | Jan.-Apr. |
| Galvanizing: | | | | | | | |
| Sheet and strip | 42,500 | 153,000 | 494,000 | 40,900 | 40,200 | 47,700 | 183,000 |
| Other | 13,800 | 46,900 | 160,000 | 13,100 | 12,700 | 15,400 | 61,000 |
| Total | 56,300 | 200,000 | 654,000 | 54,000 | 52,900 | 63,000 | 244,000 |
| Brass and bronze | 13,400 | 47,000 | 155,000 | 12,500 | 12,800 | 14,800 | 58,100 |
| Zinc-base alloy | 17,400 | 67,400 | 229,000 | 14,700 | 18,800 | 20,300 | 75,700 |
| Other uses 2/ | 16,100 | 64,400 | 172,000 | 12,700 | 12,300 | 13,900 | 53,600 |
| Total | 103,000 | 378,000 | 1,210,000 | 94,000 | 96,900 | 112,000 | 431,000 |

p/ Preliminary. r/ Revised.

1/ Data are rounded to three significant digits; may not add to totals shown.

2/ Includes zinc used in making zinc dust, wet batteries, desilvering lead, powder, alloys, anodes, chemicals, castings, light metal alloys, zinc oxide, rolled zinc, and miscellaneous uses not elsewhere specified.

TABLE 6
AVERAGE MONTHLY ZINC PRICES

| Month | North American Special High Grade, | LME cash | |
|--------------|---------------------------------------|----------|----------|
| | ¢/lb. | ¢/lb. | \$/m.t. |
| 1996: | | | |
| April | 50.61 | 47.42 | 1,045.73 |
| May | 50.50 | 46.98 | 1,036.14 |
| June | 49.57 | 45.75 | 1,008.85 |
| July | 49.87 | 45.36 | 1,000.39 |
| August | 51.26 | 45.67 | 1,007.24 |
| September | 51.39 | 45.37 | 1,000.64 |
| October | 51.52 | 45.50 | 1,003.46 |
| November | 53.31 | 47.47 | 1,046.83 |
| December | 52.77 | 47.00 | 1,036.26 |
| Year average | 51.11 | 46.50 | 1,025.03 |
| 1997: | | | |
| January | 55.17 | 49.28 | 1,086.52 |
| February | 59.26 | 53.50 | 1,179.38 |
| March | 62.69 | 56.92 | 1,254.80 |
| April | 61.97 | 56.26 | 1,240.40 |

Source: Platt's Metals Week.

TABLE 7
U.S. EXPORTS OF ZINC 1/

| Material | 1996 | | 1997 | | | |
|---|---------------------------|----------------------|---------------------------|----------------------|---------------------------|----------------------|
| | Quantity (metric tons) | Value (thousands) | March | | Year to date 2/ | |
| | | | Quantity (metric tons) | Value (thousands) | Quantity (metric tons) | Value (thousands) |
| Refined (slab) zinc | 1,970 | \$2,350 | 242 | \$333 | 770 | \$948 |
| Ore and concentrate (zinc content) | 425,000 | 190,000 | 5,750 | 2,510 | 23,700 | 9,710 |
| Waste and scrap (gross weight) | 45,500 | 30,300 | 5,710 | 3,260 | 12,200 | 7,800 |
| Powders , flakes, and dust (zinc content) | 11,100 | 21,400 | 786 | 1,530 | 2,070 | 4,090 |
| Oxide (gross weight) | 5,770 | 9,430 | 505 | 2,050 | 1,410 | 3,120 |
| Chloride (gross weight) | 1,470 | 1,230 | 187 | 150 | 712 | 498 |
| Sulfate (gross weight) | 5,230 | 2,970 | 429 | 253 | 1,060 | 652 |
| Compounds, other (gross weight) | 1,250 | 4,670 | 37 | 79 | 84 | 327 |

1/ Data are rounded to three significant digits.

2/ Data for the current month were not available at time of publication.

Source: Bureau of the Census.

TABLE 8
U.S. IMPORTS FOR CONSUMPTION OF ZINC 1/

| Material | 1996 | | 1997 | | | |
|---|---------------------------|----------------------|---------------------------|----------------------|---------------------------|----------------------|
| | Quantity (metric tons) | Value (thousands) | March | | Year to date 2/ | |
| | | | Quantity (metric tons) | Value (thousands) | Quantity (metric tons) | Value (thousands) |
| Refined (slab) zinc | 827,000 | \$882,000 | 62,300 | \$72,300 | 217,000 | \$241,000 |
| Ore and concentrate (zinc content) | 15,100 | 6,380 | 21 | 11 | 2,750 | 1,170 |
| Waste and scrap (gross weight) | 31,900 | 12,800 | 2,670 | 1,130 | 7,500 | 3,050 |
| Powders , flakes, and dust (zinc content) | 10,300 | 17,600 | 950 | 1,770 | 2,360 | 4,350 |
| Oxide (gross weight) | 56,300 | 57,500 | 6,230 | 6,910 | 16,100 | 17,200 |
| Chloride (gross weight) | 2,420 | 2,140 | 209 | 185 | 388 | 351 |
| Sulfate (gross weight) | 4,050 | 2,840 | 356 | 220 | 1,300 | 752 |
| Compounds, other (gross weight) | 1,190 | 1,280 | 126 | 148 | 333 | 408 |

1/ Data are rounded to three significant digits.

2/ Data for the current month were not available at time of publication.

Source: Bureau of the Census.

TABLE 9
SHIPMENTS OF ZINC METAL FROM THE NATIONAL DEFENSE STOCKPILE 1/

(Metric tons)

| Month | Beginning inventory | Shipments | Ending inventory |
|--------------|---------------------|-----------|------------------|
| 1996: | | | |
| April | 272,000 | 1,220 | 271,000 |
| May | 271,000 | -- | 271,000 |
| June | 271,000 | 1,430 | 270,000 |
| July | 270,000 | 1,870 | 268,000 |
| August | 268,000 | 1,460 | 266,000 |
| September | 266,000 | 2,550 | 264,000 |
| October | 264,000 | 1,630 | 262,000 |
| November | 262,000 | 2,810 | 259,000 |
| December | 259,000 | 2,110 | 257,000 |
| Total | XX | 16,500 | XX |
| 1997: | | | |
| January | 257,000 | 3,020 | 254,000 |
| February | 254,000 | 4,400 | 250,000 |
| March | 250,000 | 5,080 | 245,000 |
| April | 245,000 | 13,400 | 231,000 |
| Year to date | XX | 25,900 | XX |

XX Not applicable.

1/ Data are rounded to three significant digits; may not add to totals shown.

Source: Defense Logistics Agency.

TABLE 10
U.S. IMPORTS OF ZINC, BY TYPE OF MATERIAL AND COUNTRY 1/

(Metric tons)

| Material and country | General imports | | | Imports for consumption | | |
|-------------------------------------|-----------------|---------|--------------|-------------------------|---------|--------------|
| | 1996 | 1997 2/ | | 1996 | 1997 2/ | |
| | | March | Year to date | | March | Year to date |
| Ore and concentrate (zinc content): | | | | | | |
| Mexico | 7,000 | 21 | 2,750 | 6,970 | 21 | 2,750 |
| Peru | 10,000 | 46 | 263 | 8,080 | -- | -- |
| Other | 322 | 35 | 35 | 91 | -- | -- |
| Total | 17,300 | 102 | 3,050 | 15,100 | 21 | 2,750 |
| Blocks, pigs, or slab: | | | | | | |
| Brazil | 32,000 | 1,790 | 9,360 | 32,000 | 1,790 | 9,360 |
| Canada | 503,000 | 39,300 | 122,000 | 503,000 | 39,300 | 122,000 |
| Finland | 18,300 | 2,000 | 7,010 | 18,300 | 2,000 | 7,010 |
| Mexico | 93,900 | 5,070 | 16,400 | 93,900 | 5,070 | 16,400 |
| Peru | 23,800 | 1,450 | 4,950 | 23,800 | 1,450 | 4,950 |
| Russia | 24,100 | 1,260 | 3,440 | 24,100 | 1,260 | 3,440 |
| Spain | 83,200 | 5,830 | 28,800 | 91,400 | 9,890 | 36,300 |
| Other | 40,500 | 1,550 | 17,500 | 40,900 | 1,550 | 17,500 |
| Total | 819,000 | 58,200 | 209,000 | 827,000 | 62,300 | 217,000 |
| Dross, ashes, & fume (content) | 15,800 | 1,220 | 3,660 | 15,800 | 1,220 | 3,660 |
| Grand total | 852,000 | 59,500 | 216,000 | 858,000 | 63,500 | 223,000 |
| Oxide (gross weight): | | | | | | |
| Canada | 28,600 | 2,980 | 8,380 | 28,600 | 2,980 | 8,380 |
| China | 2,070 | 108 | 353 | 2,070 | 108 | 353 |
| Mexico | 21,400 | 2,130 | 5,530 | 21,400 | 2,130 | 5,530 |
| Other | 4,420 | 1,000 | 1,850 | 4,310 | 1,000 | 1,850 |
| Total | 56,400 | 6,230 | 16,100 | 56,300 | 6,230 | 16,100 |
| Other (gross weight): | | | | | | |
| Waste and scrap | 31,900 | 2,670 | 7,500 | 31,900 | 2,670 | 7,500 |
| Sheets | 16,900 | 4,160 | 7,720 | 16,900 | 4,160 | 7,720 |
| Dust, powder, flakes | 10,300 | 950 | 2,360 | 10,300 | 950 | 2,360 |

1/ Data are rounded to three significant digits; may not add to totals shown.

2/ Data for the current month were not available at time of publication.

Source: Bureau of the Census.